STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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North Carolina Board of Transportation
Environmental Planning and Policy Committee
Meeting Minutes for August 31, 2005

A meeting of the Environmental Planning and Policy Committee (EPPC) was held August 31, 2005 at 8:30 AM in the Board Room (Room 150) of the Transportation Building. Board Member Nina Szlosberg chaired the meeting. Other Board of Transportation members that attended were:

Tom Betts	Larry Helms
Bob Collier	Arnold Lakey
Marion Cowell	Cam McRae
Nancy Dunn	Nina Szlozberg
Douglas Galyon	Lanny Wilson

Other attendees included:

Steve DeWitt	Berry Jenkins	Benton Payne
John Dorney	Tim Johnson	M.A. Pettyjohn
Scott Edelman	David Joyner	Allen Pope
Bruce Ellis	Steve Kroeger	Periann Russell
C.A. Gardner	Don Lee	Joel Setzer
Bill Gilmore	Becky Luce-Clark	Roger Sheats
Ricky Greene	Andy McDaniel	Roy Shelton
Rob Hanson	Melba McGee	Jay Swain
M.L. Holder	Ehren Meister	Greg Thorpe
Jessica Janey	Jon Nance	Charles Tomlinson
		Todd Tugwell

Ms. Szlosberg called the meeting to order at 8:30 AM and circulated the attendance sheet. Ms. Szlosberg accepted a motion to approve the meeting minutes from the July 2005 committee meeting. The minutes were approved.

Ms. Szlosberg began by commenting that although it has been discussed before, Stream Mapping is an important topic and was again the primary topic. Ms. Szlozberg then introduced Mr. Andy McDaniel from the NCDOT Hydraulics Unit to give an overview of the need for and benefits of accurate stream mapping.

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Mr. McDaniel provided a PowerPoint presentation entitled "Stream Mapping in North Carolina." He noted that accurate stream mapping is needed from a project's inception, through planning and design, to post-construction as a tool for National Pollutant and Discharge Elimination System (NPDES) stormwater management. Stream mapping is particularly important during the planning and permitting phases. It is used for alternatives analysis, corridor selection in terms of impact minimization, National Environmental Policy Act (NEPA) documentation, various permitting activities, and mitigation. Stream map accuracy is critical to efficient project delivery.

Potential benefits to the NCDOT from more accurate statewide stream mapping include increased efficiency and the ability use technology which links the stream mapping information in ways not currently possible with existing outdated products.

NCDOT relies mostly on the USGS topographic maps, which are easily obtainable and cover the entire state. Blue line streams already exist in digitized format. The GIS digitized layers are an important component of Dot's Environmental Sensitivity Maps, which are used across the department. Aerial photography NRCS Soil Survey Maps are also used occasionally.

While these mapping products remain useful to an extent, the content of these stream maps has not kept pace with NCDOT's information needs. Environmental regulations have increased significantly over the years and DOT is forced to use these maps in ways the original cartographers never intended. Some of the problems with the topographic maps include:

- The maps are not a complete accounting of perennial and intermittent streams - yet NCDOT needs as complete an accounting as possible early in the project development process.
- The maps are not being systematically maintained - yet NCDOT needs well-maintained maps.
- The maps are often outdated, even by decades - yet NCDOT needs up-to-date information.

Two efforts have already been launched to improve statewide stream mapping. The first began in 2003 and involves a partnership between NCDOT and DWQ. The goal of this project is to develop predictive models for identifying the locations of perennial and intermittent streams. A second initiative was launched in the latter half of 2004 in response to Senate Bill (SB) 1152, known as the Studies Act of 2004. This legislation required DENR and the NC Geographic Information Coordination Council (NCGICC) to develop an implementation plan to improve mapping and the digital representation of surface waters in NC. This project is designed to improve stream mapping by leveraging the investment the state has made in its floodplain-mapping program.

Advanced identification of stream impacts will increase the efficiency of the planning and delivery of mitigation projects. While better mapping will never eliminate the need for field investigation, knowing what to expect and finding fewer surprises in terms of the numbers and types of streams encountered will translate into time and cost savings.

Better stream mapping will be a useful tool for improving the efficiency of the Merger 01 process. Many of the parties the NCDOT deals with on a daily basis supported the development of the SB1152 implementation plan. These agencies include the Division of Water Quality

(DWQ), NC Wildlife Resource Commission (WRC), Environmental Protection Agency (EPA), NC Division of Coastal Management (DCM), and many others. Improved stream mapping will lead to better decision making by all parties.

Finally, more accurate mapping will greatly assist in NPDES permit compliance activities. NCDOT's second term permit, issued in April, includes a number of significant new permit requirements not included in the first term permit. Of particular interest are those requirements related to the Total Maximum Daily Load (TMDL) developed by DWQ. It is an assessment of the maximum allowable pollutant load a water body can receive and still maintain water quality standards. NCDOT is working closely with DWQ and consultants to develop a process to fairly assess the NCDOT's pollutant load contribution. Improved stream mapping will greatly enhance our ability to manage TMDL permit requirements.

Ms. Szlosberg thanked Mr. McDaniel and introduced Mr. Tim Johnson, Director for the Center of Geographic Information and Analysis, DENR.

Mr. Johnson gave a PowerPoint presentation called "Stream Mapping Implementation Plan." His discussion focused on SB1152. This bill included four key needs for a comprehensive Stream Mapping Study. An extensive, cross-functional, cross-agency, and cross-municipality Stream Mapping Working Group (SMWG) was established to define the implementation plan requirements. Specific stream mapping deficiencies, in the context of today's information requirements, are that the maps are outdated, inaccurate, incomplete, and lack uniformity across jurisdictions. The primary reasons that the state is considering a departure from the traditional USGS map series as a resource are listed in the Implementation Plan to Improve the Mapping and Digital Representation of Surface Waters in North Carolina. The SMWG identified the problems and impacts of the existing data, then identified numerous benefits for the stream mapping implementation plan. The benefits included increased accuracy of information; improved impact analysis, permitting, and mitigation plans; better regulation and resource management; reduced field visits; and improved stakeholder and public access.

The estimated cost for statewide mapping is $16,236,500 over a 5-year period. This includes four implementation phases plus an estimate for data maintenance. The 4 implementation phases, each adding a greater level of detail, are estimated to take four years, with the maintenance phase continuing to year 5 and beyond. Upon completion of this effort, NCDOT will be in a unique position among the states to provide highly accurate stream information.

The study resulted in DENR and the NCGICC approving the plan in January 2005. Additional support was received from local, state, and federal agencies. Also, the Hurricane Recovery Act appropriated $2,685,000 for mapping 19 western counties, and SB1129 and HB1387 were introduced to support the statewide project.

To date the SMWG has submitted a project plan to the Office of State Budget and Management (OSBM) for the 2-year effort and the NCCGIC has begun implementation and briefed the 19 western counties, requesting their involvement. Mapping of the western counties is scheduled for completion in April 2007. SB1129 and HB1387 in the General Assembly have been passed

to fund the project for the remainder of the state. The full statewide implementation plan is available at: www.cgia.state.nc.us/streammap.

Mr. Cam McRae asked whether the Corp of Engineers has mapped 95% of the streams. Are we duplicating their efforts? Ms. Szlosberg replied that Mr. Todd Tugwell form the Corp of Engineers would address that question during his presentation later in the meeting.

Mr. Douglas Galyon asked what do these Senate bills (SB1129 and HB1387) say. Mr. Johnson replied that DENR, DWQ, and the NCGICC have adopted the bills to develop a stream mapping implementation plan.

Mr. Gaylon and Mr. Tom Betts asked where will the $16.2 million come from and who will be paying for this initiative? Mr. Johnson answered that we currently don't know.

Ms. Szlozberg thanked Mr. Johnson and introduced Mr. John Dorney from the Division of Water Quality, DENR.

Mr. Dorney provided a PowerPoint presentation on, "Stream Mapping Initiative of DOT, DWQ, and NCSU." The purpose of this initiative is to provide field identified locations of streams, to produce predictive models of stream locations, to provide maps of streams using LIDAR (LIght Detection And Ranging) data, to compliment the effort of NC One Map in terms of accuracy and validity, and to produce maps with known stream accuracy for planning purposes such as the comparison of alternative alignments for NCDOT. No other state has LIDAR data for the entire state, so NC will indeed be unique in its data accuracy. Mr. Dorney pointed out that presently there are known, significant discrepancies among data types available and among mapping regions. The USGS is no longer updating their maps, some maps are not available digitally, and various counties are developing their own stream maps.

The DWQ/DOT/NCSU study focused on coordinating and training consultants, contracting with NCSU to develop protocols and models, and contracting with private firms to collect field data. Fieldwork will verify modeled streams.

Ms. Szlosberg asked if there is a 15,000-ft difference in the accuracy of the stream-mapping example, and if NCDOT doesn't have accurate information during a realignment, how that impact permits, construction design, and mitigation efforts. Mr. Dorney replied that NCDOT cannot do an effective comparison between options without accurate data. The new computer modeling will help NCDOT to obtain much more accurate information.

Ms. Szlosberg then asked about the chronology of a project. Doesn't NCDOT currently look at the land after the option analysis? Mr. Dorney replied that they often need to start over with the project evaluation after the field verification. This is where the redo loop starts.

Mr. Larry Helms asked whether this will improve the delineation of the topographic maps. Mr. Dorney answered no. Mr. Helms asked if the LIDAR identifies topography. Mr. Dorney replied that the LIDAR does provide topography for the stream maps.

Mr. Helms then asked if you are able to identify 100-year flood plains with this information. Mr. Johnson replied that the floodplain mapping is occurring from east to west across the state. Preliminary flood plain information will be available online in the next few months. This was the original reason for utilizing the LIDAR data. We will also be improving the quality of wetland maps. Wetlands are more difficult to identify because they cannot be identified from the air, as streams can. Wetlands require significantly more field verification.

Mr. Helms asked why we can't get accurate data about wetlands and streams if developers do. Mr. Scott Elderman, President of WatershedConcepts, replied that it is mainly cost. The 6-inch vertical data used by developers is more expensive by a factor of 10 than the LIDAR data.

Mr. Helms then asked what constitutes a stream. Mr. Dorney replied that streams can be categorized as ephemeral, intermittent, or perennial. NCDOT has procedures to identify intermittent and perennial streams. It is dependent on the frequency of flow.

Mr. Helms questioned why we don't use developers' and city information, which is more accurate for densely populated areas. Mr. Elderman replied that the most accurate information is used if a community has it available. However, the data must be evaluated for accuracy. Often the data is 10 or 15 years old and subsequent development has made the steam data invalid.

Mr. Dorney then wrapped up his presentation noting that the pilot study involved seven smaller ecoregions across NC. Thus far field data for five regions has been delivered to NCSU for modeling and mapping. Initial model development is scheduled for fall 2005, and initial phase completion for spring 2006. If successful, NCDOT will pursue funding for the remaining ecoregions in NC. A new employee has been hired to coordinate NCDOT and North Carolina Center for Geographic Information and Analysis activities.

Ms. Szlosberg then introduced Mr. Todd Tugwell from the Army Corps of Engineers (COE). Mr. Tugwell said that his primary purpose at the meeting was to answer questions from the Board. He commented that COE was not involved with funding this initiative and COE's participation is limited. COE is interested in the final product and believes this is a good tool particularly for planning purposes. It will be very useful for mitigation planning, especially when looking 7 or more years ahead. However, site visits will still be required to ultimately make stream determinations.

Mr. Tugwell noted that there were some questions regarding how COE determines streams. It is done by going on site and looking at them. This information will be very useful in helping to anticipate what is out there prior to doing fieldwork.

Mr. Helms pointed out that there is a highly accurate body of data gathered by the private businesses which provide data to the developers. He asked if these resources could be tapped into.

Mr. Tugwell replied that COE does deal with a lot of developer information provided during the permitting process. It is difficult to get this information into a single database, as the information is very piecemeal. One other problem with developers' information is that it often becomes

obsolete as soon as it is compiled due to the implementation of development plans. There may also be proprietary issues with some of the information.

Ms. Szlosberg summarized the focus of the presentations and put forward a Draft Resolution in Support of the Implementation Plan to Improve the Mapping and Digital Representation of Surface Waters in North Carolina.

Mr. Helms moved that the EPPC endorse the resolution regarding HB1387 and SB1129. Nancy Dunn seconded the motion. As there was no opposition, the motion was approved unanimously.

Deputy Secretary Roger Sheats stepped forward and thanked the Committee for their support.

Seeing no further questions, Ms. Szlosberg adjourned the meeting at 9:35 A.M.

The next meeting for the Environmental Planning and Policy Committee is scheduled for Wednesday, October 5, 2005 at 8:30 A.M. in the Board of Transportation Room (Room 150) of the Transportation Building.

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